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USE NEW METHODS IN CONSTRUCTION

/Numbers in parentheses refer to appended sources./

The new building for the Ministry of Communications USSR, located near Krasnyye Vorota in Moscow, as well as a new underground entrance hall of the "Krasnyye Vorota" subway station, located under one of the wings of the main structure, are expected to be completed by the end of 1951. The central part of the gigantic structure has already grown to the height of 120 meters and has required 26,000 cubic meters of concrete and over 15 million bricks.

The usual practice for this kind of construction is to complete everything below ground level first, and, only when the grouns has sufficiently settled, to erect the upper structure. However, to save time, Soviet engineers have introduced a completely new method of doing both jobs at the same time by temporarily freezing the ground under the excavation.

In this particular case it was found that quicksand was underneath the layer of firm ground on which the building was to stand. The quicksand was frozen by injecting a refrigerating solution into it through pipes sunk into the excavation ground at 230 spots. The freezing of the quicksand made it possible to build the main structure, and at the same time the subway station below ground level. When the weight of the main building reached 27,000 tons, it was observed that the building was not level any longer, but had tilted to one side. This was caused by uneven expansion of the frozen quicksands. However, when the concrete work for the subway station was completed and the quicksands were thawed out, the building was again in its correct position. This new method which was completely successful and saved about one year of building time is now being introduced at other construction projects, such as at the Kuybyshev and Stalingrad GES projects.(1)

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The Riga Stroytrest (Construction Trust) No 21 has successfully conducted tests of the vibration method of driving piles and sheet piling. Long metal sheet piling was driven into the ground (sand and clay) at the rate of 6 or 7 meters per minute, while a conventional pile driver could only drive the piling at a rate of 15-20 centimeters per minute. The new method cuts down the cost of operation five-six times. It was successfully used on the construction of the Gor'kiy GES and is now being used for driving sheet piling at Volgodonstroy and at the Kuybyshev and Stalingrad GES projects. Moreover, it was found that the method also is very useful for drilling purposes in geological prospecting, as it cuts down the cost 22 times and saves considerable time. The vibrating apparatus is light and portable.

Professor D. D. Barkan, Scientific Research Institute, Ministry of Construction of Machine-Building Enterprises, inventor of this method, and his associates who assisted in developing the method, were awarded the Stalin Prize for this contribution.(2)

In addition, a group of engineers headed by S. B. Shestoperov have developed a mechanized method of placing concrete by the vibration method. This method is timesaving and is now widely used.(3)

SOURCES

1. Moscow, Trud, 1 Apr 51

2. Riga, Sovetskaya Latviya, 23 Mar 51

3. Kishinev, Sovetskaya Moldaviya, 3 Apr 51

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